

CLAIMS

1. A power semiconductor module with a housing (1) that consists of a hardenable plastic casting compound and a base plate (2), wherein electric power semiconductor components (4) are arranged on a section of the surface of the base plate (2) that faces the housing (1) by means of an insulating layer (5), and wherein at least the section of the surface of the base plate (2) that faces the housing (1) and contains the electric power semiconductor components (4) is encapsulated in the housing(), characterized in that the hardenable plastic casting compound has a hardness between 30 and 95 ShoreA.
2. The power semiconductor module according to Claim 1, characterized in that the hardenable plastic casting compound has a coefficient of linear expansion between 40 and 300 ppm/ $^{\circ}$ K and a flexural modulus between 100 kPa and 2 GPa.
3. The power semiconductor module, in particular, according to Claim 1 or 2 characterized in that the hardenable plastic casting compound consists of a thermoplastic hot-melt adhesive.
4. The power semiconductor module according to Claim 3, characterized in that the hot-melt adhesive contains a dimeric fatty acid polyamide.
5. The power semiconductor module according to Claim 3 or 4, characterized in that the hot-melt adhesive has a casting temperature between 150  $^{\circ}$ C and 220  $^{\circ}$ C.

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6. The power semiconductor module according to one of Claims 3-5, characterized in that the hot-melt adhesive can be cast with a casting pressure between 0.1 MPa and 0.5 MPa.
7. The power semiconductor module according to Claim 1, characterized in that the hardenable plastic casting compound consists of polyurethane.
8. The power semiconductor module according to Claim 1, characterized in that the hardenable plastic casting compound consists of silicone.
9. The power semiconductor module according to one of the preceding claims, characterized in that the hardenable plastic casting compound is essentially transparent in the hardened state.
10. The power semiconductor module according to one of the preceding claims, characterized in that the electric power semiconductor components (4) are essentially arranged directly on the surface of the base plate (2) that faces the housing (1) rather than via the insulating layer (5).
11. The power semiconductor module according to Claim 1, characterized in that a control device (6) is connected to at least one of the electric power semiconductor components (4) and at least partially encapsulated in the housing (1).

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12. The power semiconductor module according to Claim 11, characterized in that the control device (6) contains a printed circuit board (7) with a first circuit board side (8) that faces the electric power semiconductor components (4) and a second circuit board side (9) that faces away from the electric power semiconductor components (4), in that the first circuit board side (8) is encapsulated in the housing (1), and in that the second circuit board side (9) lies outside the housing (1).

13. The power semiconductor module according to Claim 12, characterized in that the second circuit board side (9) is thermally coupled with a cooling element (10).

14. The power semiconductor module according to Claim 11, characterized in that control link elements (11) are connected to the control device (6) and the terminal ends of the control link elements (11) lead out of the housing (1).

15. The power semiconductor module according to Claim 14, characterized in that the control link elements (11) are realized in the form of cables.

16. The power semiconductor module according to Claim 1, characterized in that at least one power link element (3) is connected to at least one of the electric power semiconductor components (4) and encapsulated in the housing (1), wherein the terminal end of the at least one power link element (3) leads out of the housing (1), and in

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that the at least one power link element (3) is realized in the form of a cable.

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